

FILEID**BUFFERCTL

E 2

BU
VO

BBBBBBBB	UU	UU	FFFFFFFFF	FFFFFFFFF	EEEEEEEEE	RRRRRRRR	CCCCCCCC	TTTTTTTT	LL
BBBBBBBB	UU	UU	FFFFFFFFF	FFFFFFFFF	EEEEEEEEE	RRRRRRRR	CCCCCCCC	TTTTTTTT	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BBBBBBBB	UU	UU	FFFFFFF	FFFFFFF	EEEEEEE	RRRRRRRR	CC	TT	LL
BBBBBBBB	UU	UU	FFFFFFF	FFFFFFF	EEEEEEE	RRRRRRRR	CC	TT	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BB	BB	UU	FF	FF	EE	RR	RR	CC	LL
BBBBBBBB	UUUUUUUUUU	FF	FF	EEEEEEEEE	RR	RR	CCCCCCCC	TT	LLLLLLLL
BBBBBBBB	UUUUUUUUUU	FF	FF	EEEEEEEEE	RR	RR	CCCCCCCC	TT	LLLLLLLL

LL	IIIII	SSSSSSS
LL	IIIII	SSSSSSS
LL	II	SS
LL	II	SS
LL	II	SS
LL	II	SSSSSS
LL	II	SSSSSS
LL	II	SS
LL	II	SS
LL	II	SS
LLLLLLLL	IIIII	SSSSSSS
LLLLLLLL	IIIII	SSSSSSS

- (1) 53 GET ONE BYTE OF DATA FROM USER BUFFER
- (1) 89 PUT ONE BYTE OF DATA INTO USER'S BUFFER
- (1) 123 INITIALIZE FOR SINGLE BYTE TRANSFERS
- (1) 145 MOVE FROM USER BUFFER
- (1) 178 MOVE TO USER BUFFER
- (1) 211 FILL SYSTEM PTE WITH TRANSFER PTE

0000 1
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0000 4
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0000 29 D. N. CUTLER 9-AUG-76
0000 30
0000 31 MODIFIED BY:
0000 32
0000 33 04 STJ0002 S. JEFFREYS 29-FEB-1980
0000 34 ADD ALTERNATE ENTRY POINTS FOR IOCSMOVTOUSER AND IOCSMOVFUSER.
0000 35
0000 36 03 STJ0001 S. JEFFREYS 26-SEP-1979
0000 37 MODIFY IOC\$PUTBYTE AND IOC\$GETBYTE TO WORK CORRECTLY FOR
0000 38 BUFFERS THAT ARE PAGE ALIGNED.
0000 39
0000 40 02 CAM001 C. MONIA 15-FEB-1979
0000 41 ADD IOC\$PUTBYTE AND IOC\$GETBYTE ROUTINES FOR TU-58 SUPPORT
0000 42
0000 43
0000 44 I/O BUFFER CONTROL ROUTINES
0000 45
0000 46 MACRO LIBRARY CALLS
0000 47
0000 48
0000 49 SPRDEF :DEFINE PROCESSOR REGISTERS
0000 50 SPTDEF :PAGE TABLE ENTRY DEFINITIONS
0000 51 \$UCBDEF :DEFINE UCB OFFSETS

0000 53 .SBTTL GET ONE BYTE OF DATA FROM USER BUFFER
 0000 54 :+
 0000 55 : IOC\$GETBYTE - GET ONE BYTE OF DATA FROM USER'S BUFFER
 0000 56 :
 0000 57 : THIS ROUTINE IS CALLED BY AN I/O DRIVER TO GET A SINGLE BYTE FROM THE
 0000 58 : USER'S BUFFER.
 0000 59 :
 0000 60 : PRIOR TO CALLING THIS ROUTINE, A CALL TO IOCSINITBUFWIND MUST BE MADE TO
 0000 61 : MAP THE SYSTEM PAGE TABLE ENTRY INTO THE USER'S BUFFER
 0000 62 :
 0000 63 : INPUTS:
 0000 64 :
 0000 65 : R0 = SYSTEM VIRTUAL ADDRESS OF ONE-PAGE WINDOW INTO USER'S BUFFER.
 0000 66 : RS = ADDRESS OF UCB.
 0000 67 :
 0000 68 : OUTPUTS:
 0000 69 :
 0000 70 : R0 = UPDATED SYSTEM VIRTUAL ADDRESS
 0000 71 : R1 = ONE BYTE OF DATA (ZERO EXTENDED)
 0000 72 :
 0000 73 : UCB\$L_SVAPTE IS UPDATED WHENEVER A PAGE BOUNDARY IS CROSSED
 0000 74 :
 0000 75 : THE DRIVER IS EXPECTED TO SAVE THE VALUE OF R0 FOR SUBSEQUENT CALLS.
 0000 76 :
 0000 77 :-
 0000 78 :
 00000000 79 .PSECT WIONONPAGED
 0000 80 :
 0000 81 IOC\$GETBYTE::
 50 01FF 80 90 0003 82 MOVB (R0)+,R1 : GET BYTE FROM USER'S BUFFER
 8F B3 0003 83 BITW #^X01FF,RO : OVERFLOW PAGE BOUNDARY?
 06 12 0008 84 BNEQ 10\$: IF NEQ NO
 78 A5 04 C0 000A 85 ADDL #4,UCB\$L_SVAPTE(R5) : UPDATE ADDRESS OF PROCESS PTE
 49 10 000E 86 BSBB IOC\$FILSPT : FILL SPT, COMPUTE SYSTEM ADDRESS OF PAGE
 05 0010 87 10\$: RSB : RETURN

0C11 89 .SBTTL PUT ONE BYTE OF DATA INTO USER'S BUFFER
 0011 90 :+
 0011 91 : IOC\$PUTBYTE - PUT ONE BYTE OF DATA IN USER'S BUFFER
 0011 92 :
 0011 93 : THIS ROUTINE IS CALLED BY AN I/O DRIVER TO PUT A SINGLE BYTE OF DATA
 0011 94 : INTO THE USER'S BUFFER.
 0011 95 :
 0011 96 : PRIOR TO CALLING THIS ROUTINE, A CALL TO IOC\$INITBUFWIND MUST BE MADE TO
 0011 97 : MAP THE SYSTEM PAGE TABLE ENTRY INTO THE USER'S BUFFER.
 0011 98 :
 0011 99 : INPUTS:
 0011 100 :
 0011 101 : R0 = SYSTEM VIRTUAL ADDRESS OF ONE-PAGE WINDOW INTO USER'S BUFFER
 0011 102 : R1 LOW BYTE = DATA TO BE TRANSFERRED TO USER
 0011 103 : R5 = ADDRESS OF UCB
 0011 104 :
 0011 105 : OUTPUTS:
 0011 106 :
 0011 107 : R0 = UPDATED SYSTEM VIRTUAL ADDRESS OF BUFFER WINDOW
 0011 108 :
 0011 109 : UCBSL_SVAPTE IS UPDATED WHENEVER A PAGE BOUNDARY IS CROSSED
 0011 110 :
 0011 111 : THE DRIVER IS EXPECTED TO SAVE THE VALUE OF R0 FOR SUBSEQUENT CALLS.
 0011 112 :
 0011 113 :-
 0011 114 :
 0011 115 IOC\$PUTBYTE:::
 50 80 51 90 0011 116 M,B R1,(R0)+ :PUT BYTE INTO USERS'S BUFFER
 01FF 8F B3 0014 117 BITW #^X01FF,RO :OVERFLOW PAGE BOUNDARY?
 06 12 0019 118 BNEQ 10\$:IF NEQ NO
 78 AS 04 C0 001B 119 ADDL #4,UCBSL_SVAPTE(R5) :UPDATE ADDRESS OF PROCESS PTE
 38 04 10 001F 120 BSBB IOC\$FILSPT :FILL SPT, COMPUTE SYSTEM ADDRESS OF PAGE
 . 38 05 0021 121 10\$: RSB :RETURN

0022 123 .SBTTL INITIALIZE FOR SINGLE BYTE TRANSFERS
0022 124 :+
0022 125 : IOC\$INITBUFWIND - INITIALIZE ONE-PAGE WINDOW INTO USER'S BUFFER
0022 126 :
0022 127 : THIS ROUTINE MUST BE CALLED BY A DRIVER TO SETUP THE INITIAL ONE-
0022 128 : PAGE WINDOW INTO A USER'S BUFFER BEFORE CALLING IOC\$GETBYTE OR
0022 129 : IOC\$PUTBYTE.
0022 130 :
0022 131 : INPUTS:
0022 132 :
0022 133 : RS = ADDRESS OF UCB
0022 134 :
0022 135 : OUTPUTS:
0022 136 :
0022 137 : RO = SYSTEM VIRTUAL ADDRESS OF WINDOW INTO USER'S BUFFER
0022 138 :-
0022 139 :
0022 140 IOC\$INITBUFWIND:::
0022 141 BSBB IOC\$FILSPT
0022 142 BISW UCBSW_BOFF(R5),RO ; FILL SPT, COMPUTE VIRTUAL ADDRESS OF PAGE
0022 143 RSB ; MERGE BYTE OFFSET INTO ADDRESS

50 7C A5 35
10 0022
A8 0024
05 0028

0029 145 .SBTTL MOVE FROM USER BUFFER
 0029 146 :+ IOC\$MOVFRUSER - MOVE FROM USER BUFFER
 0029 147 : THIS ROUTINE IS CALLED BY AN I/O DRIVER TO MOVE A STRING FROM A USER
 0029 148 : BUFFER TO AN INTERNAL BUFFER.
 0029 151 :
 0029 152 : INPUTS:
 0029 153 :
 0029 154 : R1 = ADDRESS OF INTERNAL BUFFER.
 0029 155 : R2 = NUMBER OF BYTES TO BE MOVED.
 0029 156 : R5 = UCB ADDRESS OF DEVICE UNIT.
 0029 157 :
 0029 158 : OUTPUTS:
 0029 159 :
 0029 160 : ***TBS***
 0029 161 :-
 0029 162 :
 0029 163 : ENABLE LSB
 0029 164 IOC\$MOVFRUSER:: :MOVE FROM USER BUFFER
 F7 10 0029 165 BSBBL IOC\$INITBUFWIND :SETUP WINDOW INTO BUFFER
 OD 11 002B 166 BRB 20\$:
 50 01FF 8F B3 002D 167 IOC\$MOVFRUSER2:: :
 06 12 0032 168 10\$: BITW #^X01FF,R0 :OVERFLOW PAGE BOUNDARY?
 78 A5 04 C0 0034 169 BNEQ 20\$:IF NEQ NO
 1F 10 0038 170 ADDL #4,UCB\$L_SVAPTE(R5) :UPDATE ADDRESS OF USER PTE
 003A 171 BSBBL IOC\$FILSPT :FILL SYSTEM PTE WITH PROPER RELOCATION
 81 80 90 003A 172 IOC\$MOVFRUSER1:: :
 ED 52 F5 003D 173 20\$: MOVB (R0)+(R1)+ :MOVE BYTE TO INTERNAL BUFFER
 05 0040 174 SOBGTR R2,10\$:ANY MORE BYTES TO MOVE?
 0041 175 RSB :
 0041 176 .DSABL LSB :

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0041 178 .SBTTL MOVE TO USER BUFFER
0041 179 :+
0041 180 : IOC$MOVTOUSER - MOVE TO USER BUFFER
0041 181 :
0041 182 : THIS ROUTINE IS CALLED BY AN I/O DRIVER TO MOVE A STRING FROM AN INTERNAL
0041 183 : BUFFER TO A USER BUFFER.
0041 184 :
0041 185 : INPUTS:
0041 186 :
0041 187 : R1 = ADDRESS OF INTERNAL BUFFER.
0041 188 : R2 = NUMBER OF BYTES TO BE MOVED.
0041 189 : R5 = UCB ADDRESS OF DEVICE UNIT.
0041 190 :
0041 191 : OUTPUTS:
0041 192 :
0041 193 : ***TBS***-
0041 194 :
0041 195 :
0041 196 : ENABLE LSB
0041 197 IOC$MOVTOUSER:: MOVE TO USER BUFFER
DF 10 0041 198 BSB8 IOC$INITBUFWIND ;INITIALIZE WINDOW INTO BUFFER
OD 11 0043 199 BRB 20$ ;
0045 200 IOC$MOVTOUSER2:: ;
50 01FF 8F B3 0045 201 10$: BITW #^X01FF,R0 ;OVERFLOW PAGE BOUNDARY?
06 12 004A 202 BNEQ 20$ ;IF NEQ NO
78 A5 04 C0 004C 203 ADDL #4,UCBSL SVPTE(R5) ;UPDATE ADDRESS OF USER PTE
07 10 0050 204 BSB8 IOC$FILSPTR ;FILL SYSTEM PTE WITH PROPER RELOCATION
80 81 90 0052 205 IOC$MOVTOUSER1:: ;
ED 52 F5 0052 206 20$: MOVB (R1)+(R0)+ ;MOVE BYTE TO USER BUFFER
05 0055 207 SOBGTR R2,10$ ;ANY MORE BYTES TO MOVE?
0058 208 RSB ;
0059 209 .DSABL LSB ;

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0059 211 .SBTTL FILL SYSTEM PTE WITH TRANSFER PTE
 0059 212 :+
 0059 213 : IOC\$FILSPT - FILL SYSTEM PTE WITH TRANSFER PTE
 0059 214 :
 0059 215 : THIS ROUTINE IS CALLED TO FILL A SYSTEM PTE WITH A TRANSFER PTE OF A
 0059 216 : LOCKED DOWN BUFFER SO THAT IT MAY BE DIRECTLY ADDRESS.
 0059 217 :
 0059 218 : INPUTS:
 0059 219 :
 0059 220 : R5 = DEVICE UNIT UCB ADDRESS.
 0059 221 :
 0059 222 : OUTPUTS:
 0059 223 :
 0059 224 : R0 = SYSTEM VIRTUAL ADDRESS OF START OF PAGE CONTAINING THE BUFFER.
 0059 225 :
 0059 226 : REGISTERS R1, R2, AND R3 ARE PRESERVED ACROSS CALL.
 0059 227 :-
 0059 228 :
 0059 229 IOC\$FILSPT:: :FILL SYSTEM PTE WITH TRANSFER PTE
 50 74 A5 53 DD 0059 230 PUSHL R3 :SAVE REGISTERS
 53 78 B5 04 C5 0058 231 MULL3 #4,UCBSL_SVPN(R5),R0 :CALCULATE BYTE OFFSET IN SYSTEM PAGE TABLE
 03 19 0060 232 MOVL UCBSL_SVAPTE(R5),R3 :GET CONTENTS OF TRANSFER PTE
 00000000'FF40 15 00 53 F0 0069 233 BLSS 10\$:IF LSS ENTRY IS VALID
 50 50 07 78 0073 234 BSBW IOC\$PTETOPFN :GET PFN FOR INVALID PTE
 00 50 1F E2 0077 235 10\$: INSV R3,#PTESV_PFN,#PTESS_PFN,AMMG\$GL_SPTBASE[R0] :SET SYSTEM PTE ENTRY PFN
 08 BA 007E 236 ASHL #7 R0,R0 :CONVERT SVPN TO SYSTEM VIRTUAL ADDRESS
 05 0080 237 BBSS #31,R0,20\$:
 0081 238 20\$: INVALID R0 :INVALIDATE TRANSLATION BUFFER
 0081 239 POPR #^M<R3> :RESTORE REGISTERS
 0081 240 RSB :
 0081 241 .FND :
 0081 242 :
 0081 243 :

BUFFERCTL
Symbol table

- I/O BUFFER CONTROL

N 2

15-SEP-1984 23:52:45 VAX/VMS Macro V04-00
5-SEP-1984 03:40:11 [SYS.SRC]BUFFERCTL.MAR;1

Page 8
(1)

IOC\$FILSPT 00000059 RG 02
IOC\$GETBYTE 00000000 RG 02
IOC\$INITBUFWIND 00000022 RG 02
IOC\$MOVFRUSER 00000029 RG 02
IOC\$MOVFRUSER1 0000003A RG 02
IOC\$MOVFRUSER2 0000002D RG 02
IOC\$MOVTOUSER 00000041 RG 02
IOC\$MOVTOUSER1 00000052 RG 02
IOC\$MOVTOUSER2 00000045 RG 02
IOC\$PTETOPFN ***** X 02
IOC\$PUTBYTE 00000011 RG 02
***** X 02
MMG\$GL_SPTBASE = 0000003A
PR\$TBIS = 00000015
PTE\$S_PFN = 00000000
PTE\$V_PFN = 00000078
UCB\$L_SVAPTE = 00000074
UCB\$L_SVPN = 0000007C
UCB\$W_BOFF = 0000007C

+-----+
! Psect synopsis !
+-----+

PSECT name

	Allocation	PSECT No.	Attributes																	
ABS .	00000000	(0.)	00 (0.)	NOPIE	USR	CON	ABS	LCL	NOSHR	NOEXE	NORD	NOWRT	NOVEC	BYTE						
\$ABSS	00000000	(0.)	01 (1.)	NOPIE	USR	CON	ABS	LCL	NOSHR	EXE	RD	WRT	NOVEC	BYTE						
WIONONPAGED	00000081	(129.)	02 (2.)	NOPIE	USR	CON	REL	LCL	NOSHR	EXE	RD	WRT	NOVEC	BYTE						

+-----+
! Performance indicators !
+-----+

Phase

	Page faults	CPU Time	Elapsed Time
Initialization	29	00:00:00.09	00:00:02.08
Command processing	108	00:00:00.53	00:00:03.44
Pass 1	222	00:00:04.52	00:00:16.39
Symbol table sort	0	00:00:00.71	00:00:01.92
Pass 2	60	00:00:00.97	00:00:04.09
Symbol table output	4	00:00:00.04	00:00:00.05
Psect synopsis output	1	00:00:00.02	00:00:00.03
Cross-reference output	0	00:00:00.00	00:00:00.00
Assembler run totals	426	00:00:06.89	00:00:28.00

The working set limit was 1050 pages.

25635 bytes (51 pages) of virtual memory were used to buffer the intermediate code.

There were 30 pages of symbol table space allocated to hold 490 non-local and 8 local symbols.

243 source lines were read in Pass 1, producing 13 object records in Pass 2.

11 pages of virtual memory were used to define 10 macros.

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+-----+
! Macro library statistics !
+-----+

Macro library name

-\$255\$DUA28:[SYS.OBJ]LIB.MLB;1
-\$255\$DUA28:[SYSLIB]STARLET.MLB;2
TOTALS (all libraries)

Macros defined

3
4
7

557 GETS were required to define 7 macros.

There were no errors, warnings or information messages.

MACRO/LIS=LISS:BUFFERCTL/OBJ=OBJ\$:BUFFERCTL MSRC\$:BUFFERCTL/UPDATE=(ENH\$:BUFFERCTL)+EXECMLS/LIB

0373 AH-BT13A-SE
VAX/VMS V4.0

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LIS

CUTFILNAM
LIS

CJFSYSVEC
LIS

CUTATB
LIS

BUGCHKMSG
LIS

CONSOLIO
LIS